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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,452

09/28/2006

Kazuo Fujiura

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22913 7590 02/12/2008

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EXAMINER

WIESE, NOAH S

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,452	<b>Applicant(s)</b> FUJIURA ET AL.	
	<b>Examiner</b> NOAH S. WIESE	<b>Art Unit</b> 4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/20/2007; 10/31/2007</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of Application***

1. The claims 1-15 are pending and presented for the examination.

### ***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. PCT/JP05/11433.

### ***Information Disclosure Statement (IDS)***

3. The information disclosure statements (IDS) were submitted on 02/20/2007 and 10/31/2007. The submissions are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner. Please refer to applicant's copy of the 1449 herewith.

### ***Double Patenting***

4. Applicant is advised that should claim 13 be found allowable, claim 13 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamiyama et al (US 6043940).

**Claims 1 and 2** are drawn to an optical medium.

Kamiyama et al teaches optical lenses with compositions that include  $\text{KTaO}_3$  (see Abstract). This composition would inherently have a cubic structure because the Li and Nb content are within the ranges cited by applicant in the specification for transition temperature below room temperature. Therefore, all of the compositional and structural limitations of the claims 1-2 are met. Kamiyama et al further teaches that the lenses taught have a high refractive index of over 2.0, and more specifically from 2.0-3.7 (see Abstract and column 2, lines 40-48). This indicates that lenses with the compositional and structural properties of claim 6 and as taught by Kamiyama will inherently have refractive indices above 2.2.

7. Claims 6 and 7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kamiyama et al (US 6043940).

**Claims 6 and 7** are drawn to a lens with the same structural and compositional properties as the claims 1 and 2.

As discussed above, Kamiyama et al teaches a lens with the compositional and structural properties of claims 6 and 7, and that would inherently have a refractive index that meets the limitation of claims 6 and 7. Kamiyama et al does not teach the transmission of light through a 10mm thickness. However, Kamiyama et al does teach that the transmittance is excellent, and the optical materials of Kamiyama et al and instant application have equivalent compositional and structural properties. Therefore, the Kamiyama lenses would inherently have this transmission property. Kamiyama et al therefore teaches all of the limitations of claims 1-2 and 6-7.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiyama et al (US 6043940).

**Claims 3 and 8** are drawn to an optical medium and a lens with the same structural and compositional limitations.

Kamiyama et al teaches an optical lens with the composition  $K(Ta,Nb)O_3$  (see Abstract). This composition includes Ta and Nb amounts that encompass the amounts of the limitation in claims 3 and 8. One of ordinary skill in the art, through ordinary experimentation and optimization of the range taught by Kamiyama et al, would arrive at  $K(Ta,Nb)O_3$  compositions that meet the limitations of claims 3 and 8. See MPEP 2144.05 (II).

“[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.”

Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382

Therefore, the claims are obvious and not patentably distinct over the prior art of record.

11. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmeister et al (US 5785898).

**Claims 4 and 5** are drawn to optical media.

Hofmeister et al teaches optical crystalline material with a composition  $K_{1-y}Li_yTa_{1-x}Nb_xO_3$ , wherein x is between 0 and 1 and y is between 0.005 and 0.09 (see Abstract and claim 5). Because the x value of the formula can be 0, the Hofmeister teachings meet the limitations of claim 4. The y range encompasses the range of claims 4 and 5. Clearly, the optical materials taught by Hofmeister et al include those of claims 4 and 5. One of ordinary skill in the art, through ordinary experimentation and optimization within the ranges taught by Hofmeister et al, would arrive at  $K_{1-y}Li_yTa_{1-x}Nb_xO_3$  compositions that meet the limitations of claims 4 and 5. See MPEP 2144.05 (II) and cases discussed above. Therefore, the claims are obvious and not patentably distinct over the prior art of record.

12. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmeister et al (US 5785898) in view of Kamiyama et al (US 6043940).

**Claims 9 and 10** are drawn to optical lenses.

While Hofmeister et al teaches optical materials that meet the compositional limitations of claims 9 and 10, the use of the materials as lenses is not taught. However, as discussed above, Kamiyama et al teaches lenses made from optical materials that are similar to those taught by Hofmeister et al. The materials include  $KTaO_3$  and  $K(Ta,Nb)O_3$ , as well as materials where Li is in the “ $\alpha$ ” position (see Abstract). The use of such similar materials by Kamiyama as lenses would show one of ordinary skill in the art that the materials taught by Hofmeister et al could be used as optical lenses. One would have been motivated to use the materials for lenses in order to realize the many functions that lenses can provide, and to do so with the benefits given by the Hofmeister

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materials. One would have expected reasonable success in this modification because, as discussed above, the materials taught by Hofmeister et al and Kamiyama et al are very similar, and thus no detrimental effects would be expected from the modification. Therefore, claims 9 and 10 are obvious and not patentably distinct over the prior art of record.

13. Claims 11-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiyama et al (US 6043940) in view of Fujikawa et al (US 6559084).

**Claims 11-13 and 15** are drawn to prisms.

As discussed above, the compositional limitations of claims 11-13 and 15 are either anticipated by or unpatentable over the teachings of Kamiyama et al. Kamiyama et al does not teach that the optical material can be made into prisms. However, the use of  $\alpha\beta\text{O}_3$ -type materials to create prisms was known in the art at the time the invention was filed. Therefore, it would have been obvious to create prisms from the materials taught by Kamiyama et al.

Fujikawa et al teaches a ceramic composition wherein the main component is  $\text{BaTiO}_3$ , an  $\alpha\beta\text{O}_3$ -type material like those of instant application. The material is made into prisms (see column 11, lines 55-67). This teaching would indicate to one of ordinary skill that these types of materials can be formed into prism shapes. Because the usefulness of prisms is well known in the art, one would be motivated to create prism shapes from the materials taught by Kamiyama et al. Absent teaching as to the properties of this modified prism, it is the opinion of the examiner that a prism shape with the Kamiyama composition (which is equivalent to those of claims 11-13 and 15)



would have the optical properties recited in claim 11. Because it would have been obvious to create a prism from the Kamiyama material, and because such a prism would meet all of the limitations of claims 11-13 and 15, the claims are obvious and not patentably distinct over the prior art of record.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmeister et al (US 5785898) in view of Fujikawa et al (US 6559084).

**Claim 14** further limits claim 11 by further specifying the compositional limitations.

As discussed above, the compositional limitations of claim 14 are unpatentable over the teachings of Hofmeister et al but Hofmeister et al does not teach that the optical material can be made into prisms. However, the use of  $\alpha\beta\text{O}_3$ -type materials to create prisms, as taught by Fujikawa et al and as discussed above, was known in the art at the time the invention was filed. Therefore, it would have been obvious to create prisms from the materials taught by Hofmeister et al, again for the reasons discussed above. Absent teaching as to the properties of this modified prism, it is the opinion of the examiner that a prism shape with the Hofmeister composition (which is equivalent to that of claim 14) would have the optical properties recited in claim 14. Because it would have been obvious to create a prism from the Hofmeister material, and because such a prism would meet all of the limitations of claim 14, the claim is obvious and not patentably distinct over the prior art of record.

### ***Conclusion***

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15. No claim is allowed.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noah S. Wiese whose telephone number is 571-270-3596. The examiner can normally be reached on Monday-Friday, 7:30am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Noah Wiese  
January 24<sup>th</sup>, 2008  
AU 4116

/Vickie Kim/

Supervisory Patent Examiner, Art Unit 4116